



Facilitate Open Science Training for  
European Research



# Introduction to Open Science

Winning Horizon2020 with Open Science.  
Universidad Carlos III de Madrid  
13 Mayo 2015

Remedios Melero

Consejo Superior de Investigaciones Científicas (CSIC),  
Socio del proyecto FOSTER



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# FOSTER.....Quick facts

- Project Name: FACILITATE OPEN SCIENCE TRAINING FOR EUROPEAN RESEARCH
- Project Acronym: FOSTER
- Project number: 612425
- Start Date: 01/02/2014
- Duration: 24 months
- Funding from the EC: 1.499.860,00€
- Website: [www.fosteropenscience.eu](http://www.fosteropenscience.eu)

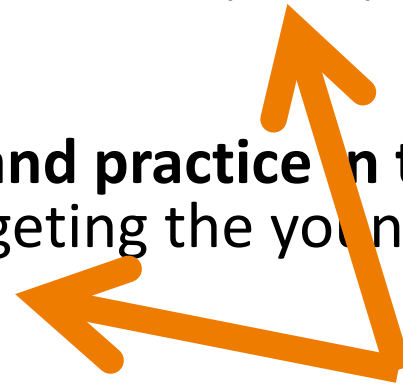


# Partners

- Universidade do Minho - *Portugal*
- Georg-August-Universitaet Goettingen Stiftung Oeffentlichen Rechts – *Germany*
- Danmarks Tekniske Universitet – *Denmark*
- Stichting eIFL.net – *Netherlands*
- SPARC-Europe – *UK*
- Stichting LIBER – *Netherlands*
- University of Glasgow – DCC – *UK*
- Technische Universiteit Delft – *Netherlands*
- The Open University – *UK*
- ICM - Uniwersytet Warszawski – *Poland*
- Consortium Universitaire de Publications Numériques Couperin – *France*
- Consejo Superior de Investigaciones Científicas – *Spain*
- University of Edinburgh - DCC – *UK*

# General objectives

- **Support different stakeholders, especially young researchers**, in adopting open access in the context of the European Research Area (ERA) and in complying with the open access policies and rules of participation set out for Horizon 2020;
- **Integrate open access principles and practice in the current research workflow** by targeting the young researcher training environment;
- **Strengthen the institutional training capacity** to foster compliance with the open access policies of the ERA and Horizon 2020 (beyond the FOSTER project);
- **Facilitate the adoption, reinforcement and implementation of open access policies from other European funders**, in line with the EC's recommendation.



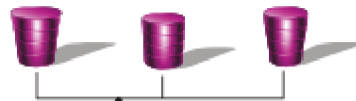
# Events



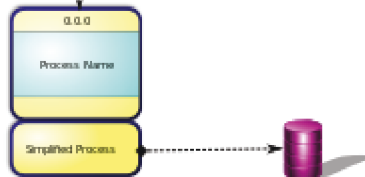
<https://www.fosteropenscience.eu/events>

# Open Science *does not equal* Open Access

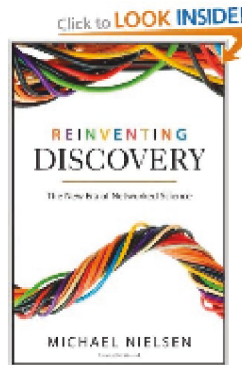
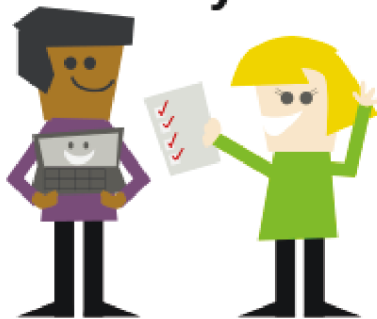
Open Data



Transparent Processing



Community science



Engaging all stakeholders in the process (data collection and analysis) and synthesis of publically funded research.

*A 21st Century approach to engagement  
a discussion*



**Green Open Access**

Pre-print or other version of a publication held in a national or institutional repository.



**Gold Open Access**

Payment to Open Access journal to publish paper. Payment to traditional journal to not place paper behind a pay-wall. Held by the journal.

Making the synthetic derivatives of publically funded academic research publically accessible.

*A 17th Century approach to engagement  
a lecture*

Arbeck (2013).

[http://commons.wikimedia.org/wiki/File:Open\\_Science\\_Does\\_Not\\_Equal\\_Open\\_Access.svg](http://commons.wikimedia.org/wiki/File:Open_Science_Does_Not_Equal_Open_Access.svg)

# Open Science Definitions

“Open Science (OS) offers researchers tools and workflows for **transparency, reproducibility, dissemination** and transfer of new knowledge” (Ivo Grigorov)

“The conduction of science in a way that others **can collaborate and contribute**, where **research data, lab notes and other research processes** are freely available, with terms that allow reuse, redistribution and reproduction of the research. ( Open science, [http://en.wikipedia.org/wiki/Open\\_science](http://en.wikipedia.org/wiki/Open_science))

“Open science is the idea that **scientific knowledge of all kinds** should be **openly shared** as early as is practical in the discovery process.”  
(Michael Nielsen, <http://openscienceasap.org/open-science/> )





# Principles of Open Science

**Open Methodology** (Methods, processes, relevant documents)

**Open Source** (Soft- und Hardware)

**Open Data** (data free to re-use)

**Open Access to scholarly outputs** (gratis and libre)

**Open Peer Review** (transparency in evaluation and quality criteria)

**Open Educational Resources** (MOOCs, OERs)

<http://openscienceasap.org/open-science/>



**Research Funding Cycle**  
**Research Life Cycle,**  
**Scholarly Communication Life Cycle**  
**Data Life Cycle**

**Vs Open Science.....**





# Current Funding Cycle for Research Articles

Limited dissemination, economic efficiency and social impact



<http://creativecommons.org/weblog/entry/39707>

# Optimized Funding Cycle for Research Articles

Maximum dissemination, economic efficiency and social impact

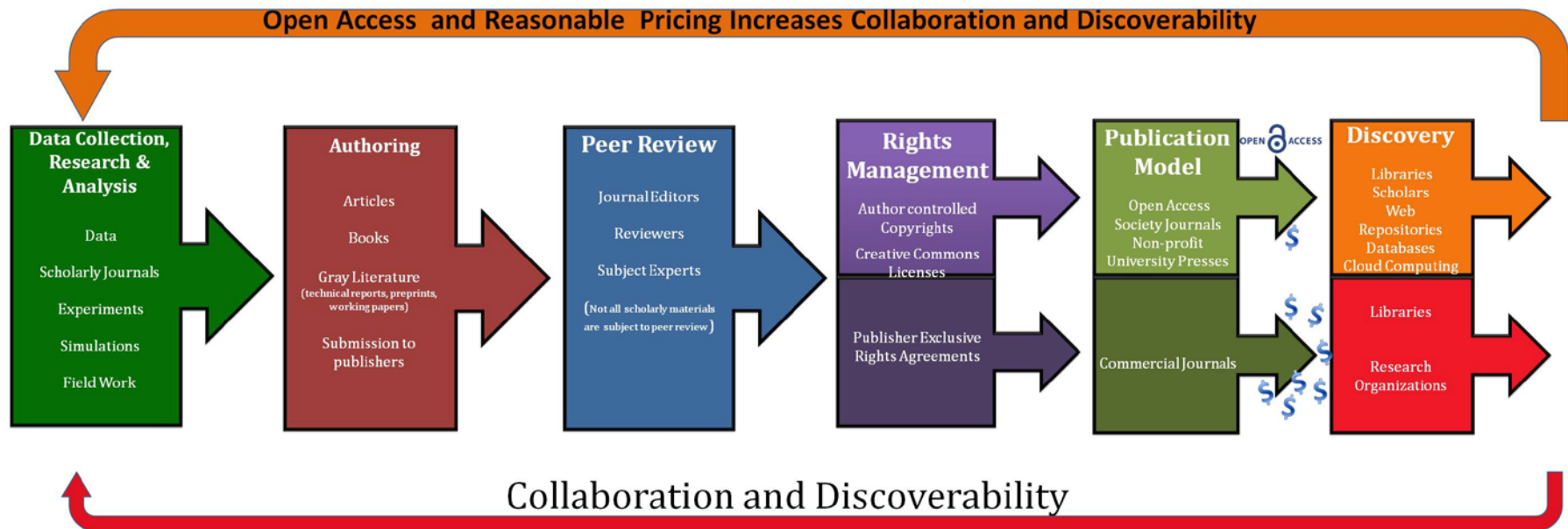


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Icons from *The Noun Project* by: CC BY 3.0: Adam Whitcroft (cloud upload) - Anand A Nair (share) - Andrew Forrester (locks) - Diego Naive (speaker, book) - Emma Vilà Hopkins (turtle) - José Hernandez (fence) - Henrik Lund Mikkelsen (money) - Sotirios Papavasiliopoulos (light bulb) - Thomas Weber (community) CC0: Antonis Makriyannis (scientist) - Arthur Schmitt (construction) - Dsathiyaraj (folder) - Fission Strategy (download) - Max Hancock (brain) - Mike Wirth (hourglass)

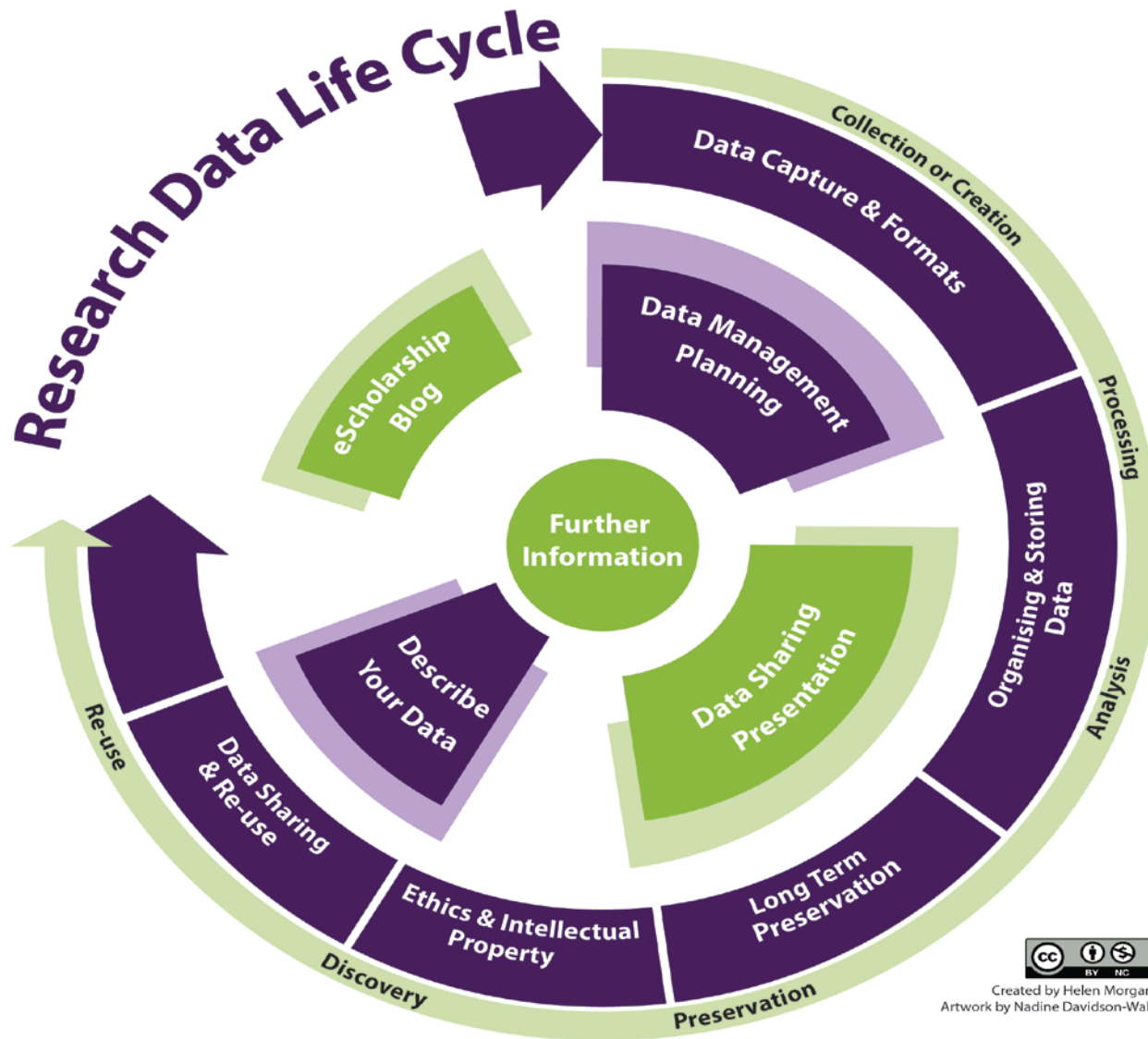
<http://creativecommons.org/weblog/entry/39707>

# Lifecycle of Scholarly Communication



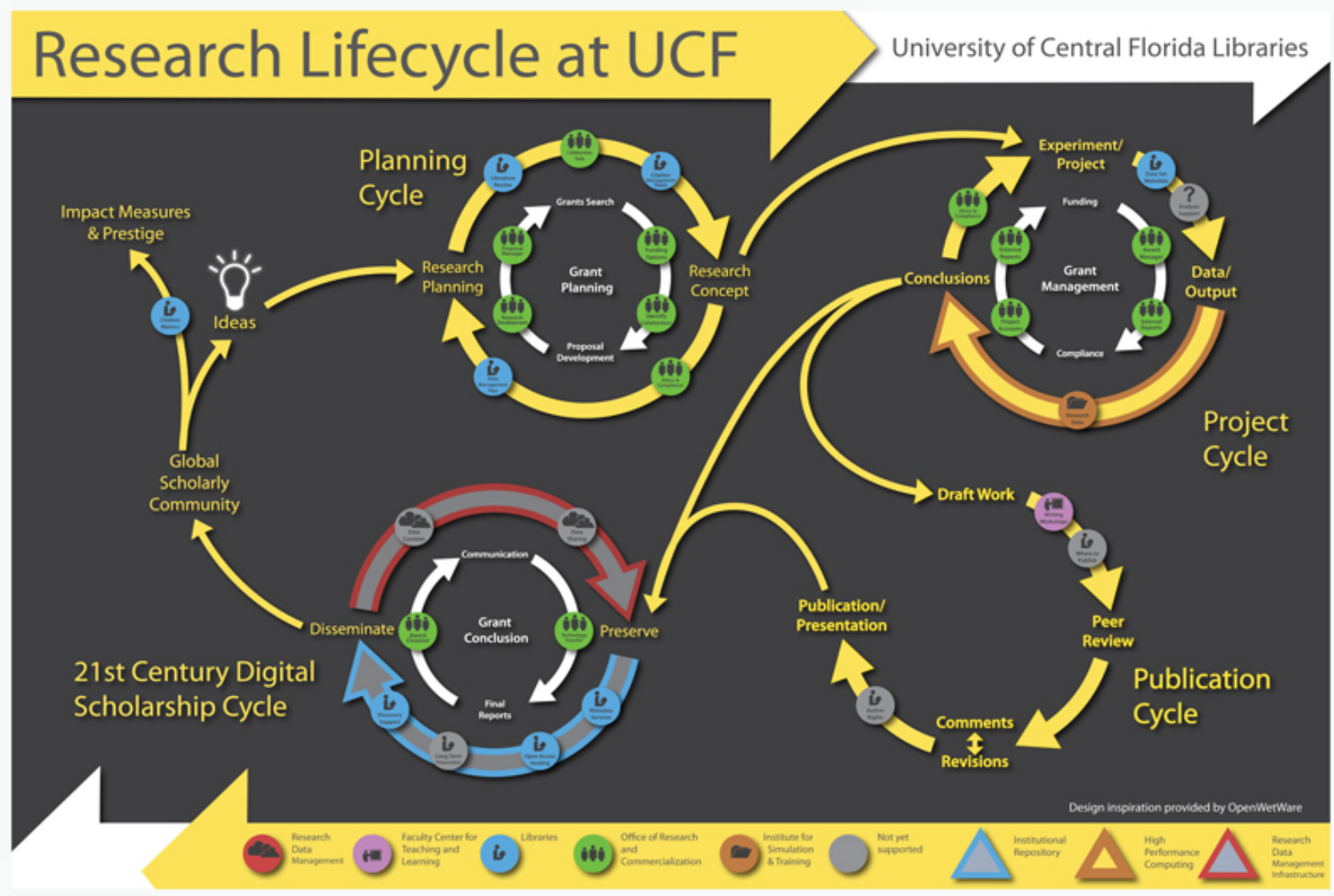
The structure of scholarly communication has developed over centuries to create, evaluate, certify, disseminate and preserve the intellectual outputs of scholars. It involves three major stakeholders -the **scholars** who create the knowledge, **publishers**, who review, edit, package and distribute the knowledge, and the **libraries/repositories** that collect preserve and organize the knowledge. The digital revolution has enabled quicker and cheaper access to a wide range of information and alternative models of publication. Digital Publishing, Digital Repositories, Open Access Journals are all representatives of the alternative models of publications. **Creative Commons Licensing Agreements** allow wider distribution and use of scholarly materials.

<http://www.washington.edu/news/2011/10/19/uw-libraries-hosts-exhibit-on-open-access-scholarly-publishing/>



Created by Helen Morgan  
Artwork by Nadine Davidson-Wall

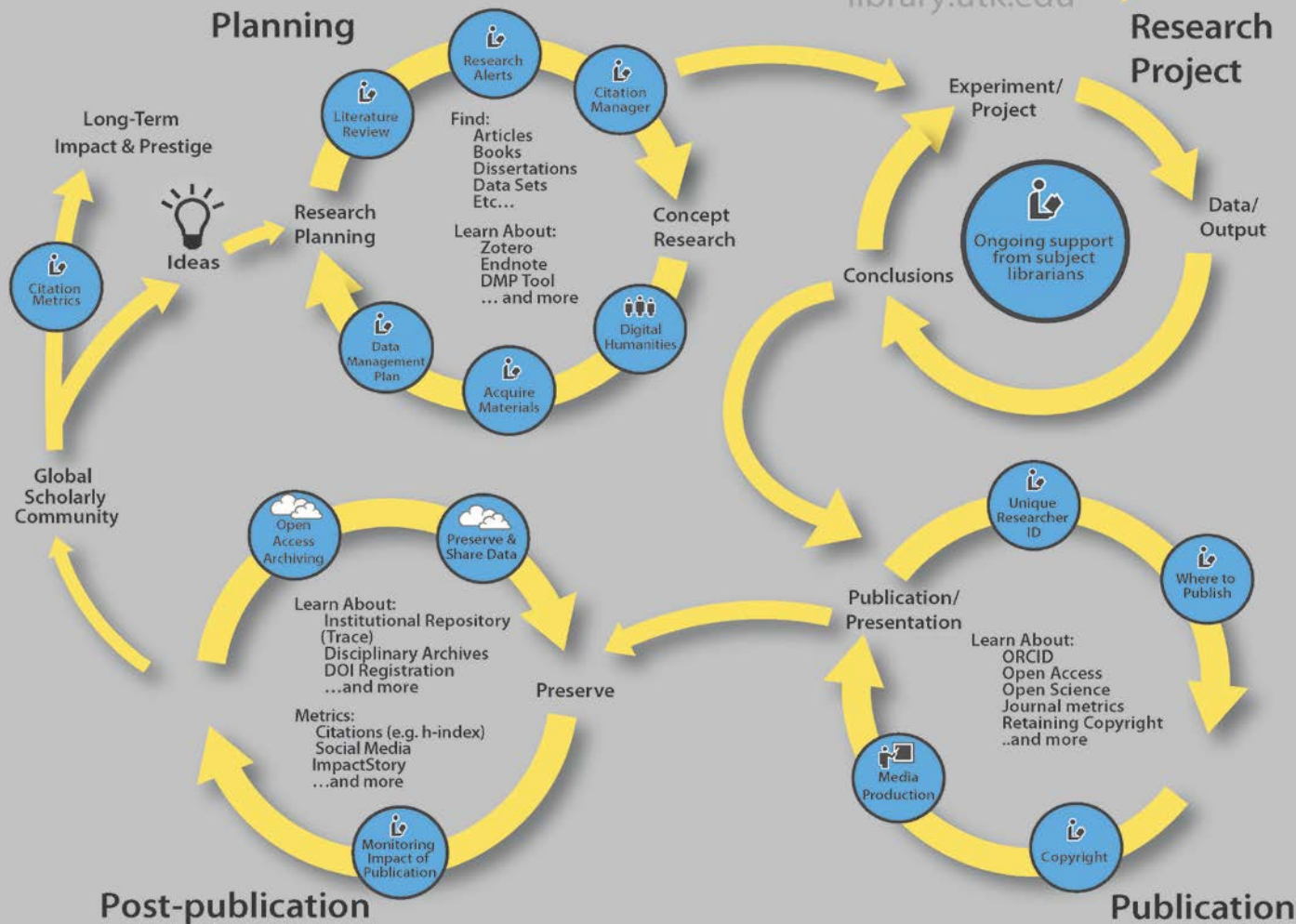






# Your subject librarian... partner in research

library.utk.edu



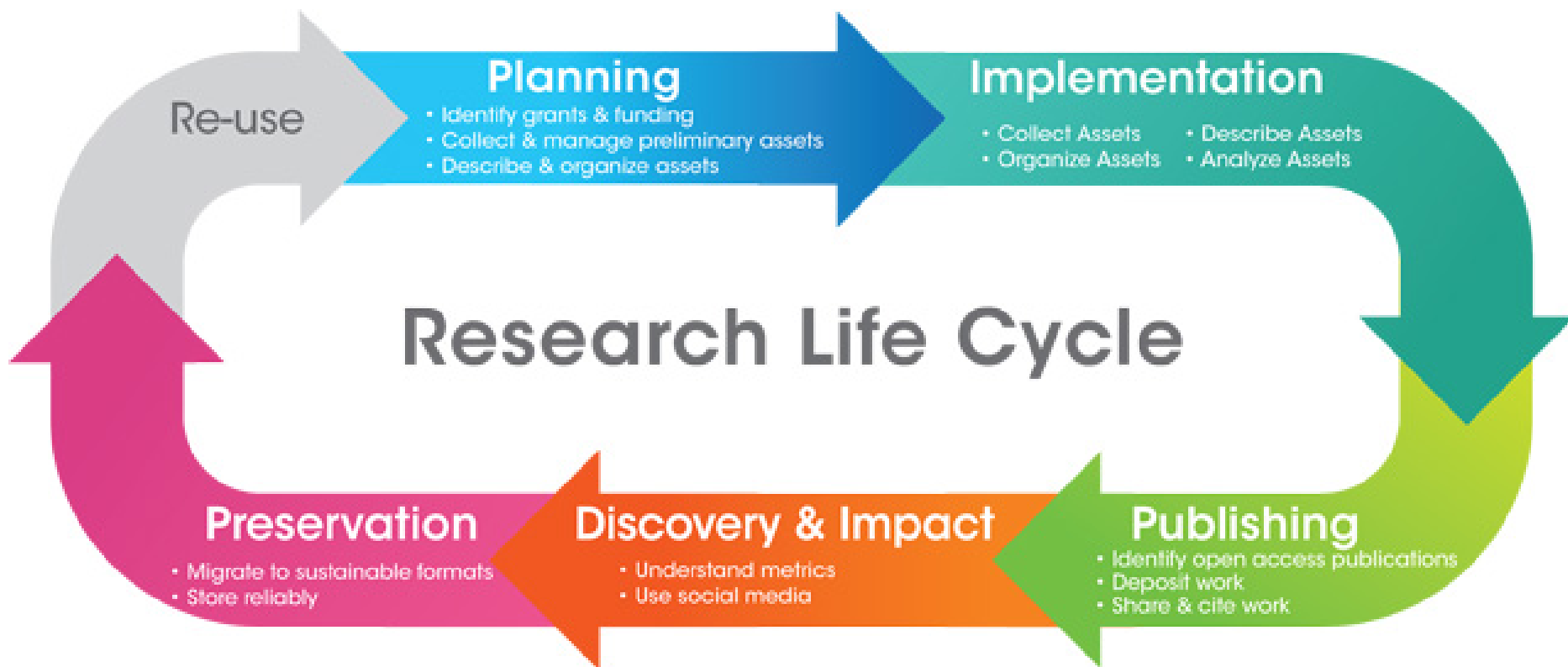
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Design inspiration by OpenWetWare

University Tennessee-Knoxville

<http://www.lib.utk.edu/scholar/research-cycle/>





Scheme from University of California- Irvine <http://www.lib.uci.edu/dss/>

# Research Life Cycle and vs “opens”

.....



- OA licences
- Ethics
- Codes of conduct

## Planning

- OA resources (data, content)
- Open software
- Compliance with an OA policy?
- Digital management plan (DMP)?

## Implementation

- Open data
- Open research data (Danton principles)
- Open citizen science
- Open Notebook science
- Data sharing

## Publishing

- OA repositories
- OA journals
- Data journals
- Open peer review

## Discovery/ Impact

- OA servers providers/Search engines
- Metrics
- Altmetrics ( see Leiden Manifesto, DORA)
- Social media
- Data mining (see The ahgue Declaration)

## Preservation

- OA repositories
- DCC centres

## Reuse

# Research Life Cycle

▼ **FUNDING OPEN ACCESS**

▼ **RESEARCH PROMOTION**

▼ **OPEN ACCESS IN HUMANITIES**

**TAG ARCHIVES: FUNDING ▼**



February 13, 2015

**O & A on Open Access funding**

All stories were created by Agata Morka, Product Manager of Open Access Books...

[read more →](#)



February 4, 2015

**How to get your Article Processing Charges funded? – a step by step guide**

Publishers do not expect authors to pay for APC out of their own pocket, and...

[read more →](#)



November 25, 2014

**Bill and Melinda Gates Foundation, new Open Access Funder, especially for low and middle income countries**

Starting from January 1, 2015 all new funding agreements with the Bill and...

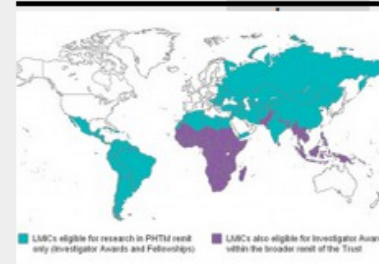
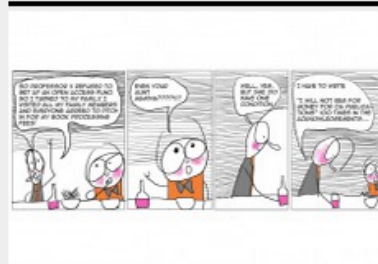


August 7, 2014

**Agata Morka on Open Access Book publishing and Emerging Scholar Monograph Competition**

Today I would like to present an interview with Dr. Agata Morka, Product...

[read more →](#)



# Participate in Open Science

COS collaborates with and produces tools for scientists, journals and societies, and developers. Below our free services or collaborate on promoting open science.

[Ambassadors](#)[Scientists](#)[Journals and Societies](#)[Developers](#)

## Take Steps Towards Transparency

COS offers researchers tools and services to make your research better, more efficient, and

### 1. Use The Open Science Framework (OSF)

OSF is a free, secure web application for project management, collaboration, registration, and archiving. Stop losing files, improve collaboration, and integrate OSF projects with the tools you use (e.g., Dropbox, GitHub, Figshare, Dataverse). [Learn more.](#)

[Sign](#)

### 2. Conduct Reproducible Analyses

COS offers free statistical consulting to improve reproducible practices. Get email help on power analysis and calculating confidence intervals, individualized hangouts for learning R and GitHub, or schedule a group to be trained on OSF. [Read more.](#)

[Reque](#)

### 3. Pre-register your studies



# Participate in Open Science

COS collaborates with and produces tools for scientists, journals and societies, and developers. Below, explore ways to use our free services or collaborate on promoting open science.

[Ambassadors](#)[Scientists](#)[Journals and Societies](#)[Developers](#)

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[Sign up for the OSF](#)

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[Request a consultation](#)

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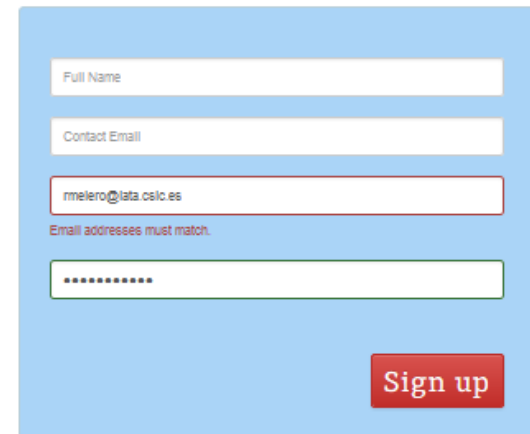
[http://centerforopenscience.org/involved\\_participate/#tab\\_2](http://centerforopenscience.org/involved_participate/#tab_2)



# Open Science Framework <https://osf.io/>

Project management with  
collaborators,  
project sharing with the public

The Open Science Framework (OSF) supports the entire research lifecycle: planning, execution, reporting, archiving, and discovery.

A sign-up form on a light blue background. It contains four input fields: 'Full Name', 'Contact Email', a password field with the text 'meiero@ata.csic.es' and a red border, and a confirmation password field with asterisks. Below the password fields is the text 'Email addresses must match.' in red. A red 'Sign up' button is located at the bottom right of the form area.

Full Name

Contact Email

meiero@ata.csic.es

Email addresses must match.

\*\*\*\*\*

Sign up

## What can the OSF do for you?

Provide features to increase the efficiency and effectiveness of your research



### CONNECTIONS

with the services you already use

Link services to simplify transitions and facilitate interactions; e.g., connect OSF to your Dropbox, GitHub, and Amazon S3 repositories and all four work together!



### ARCHIVING

and managing collaborations

Spend more time doing your research and less time keeping track of it. No more lost data from crashed drives, disappearing collaborators, or failing memories.



### CONTROL

over private and public workflows

Work privately among collaborators and, when you wish, make some or all of your research materials public for others to use and cite.





## Open Science Framework- Badges to acknowledge good practices

Badges do not define good practice; they certify that a particular practice was followed



The Open Data badge is earned for making publicly available the digitally-shareable data necessary to reproduce the reported results



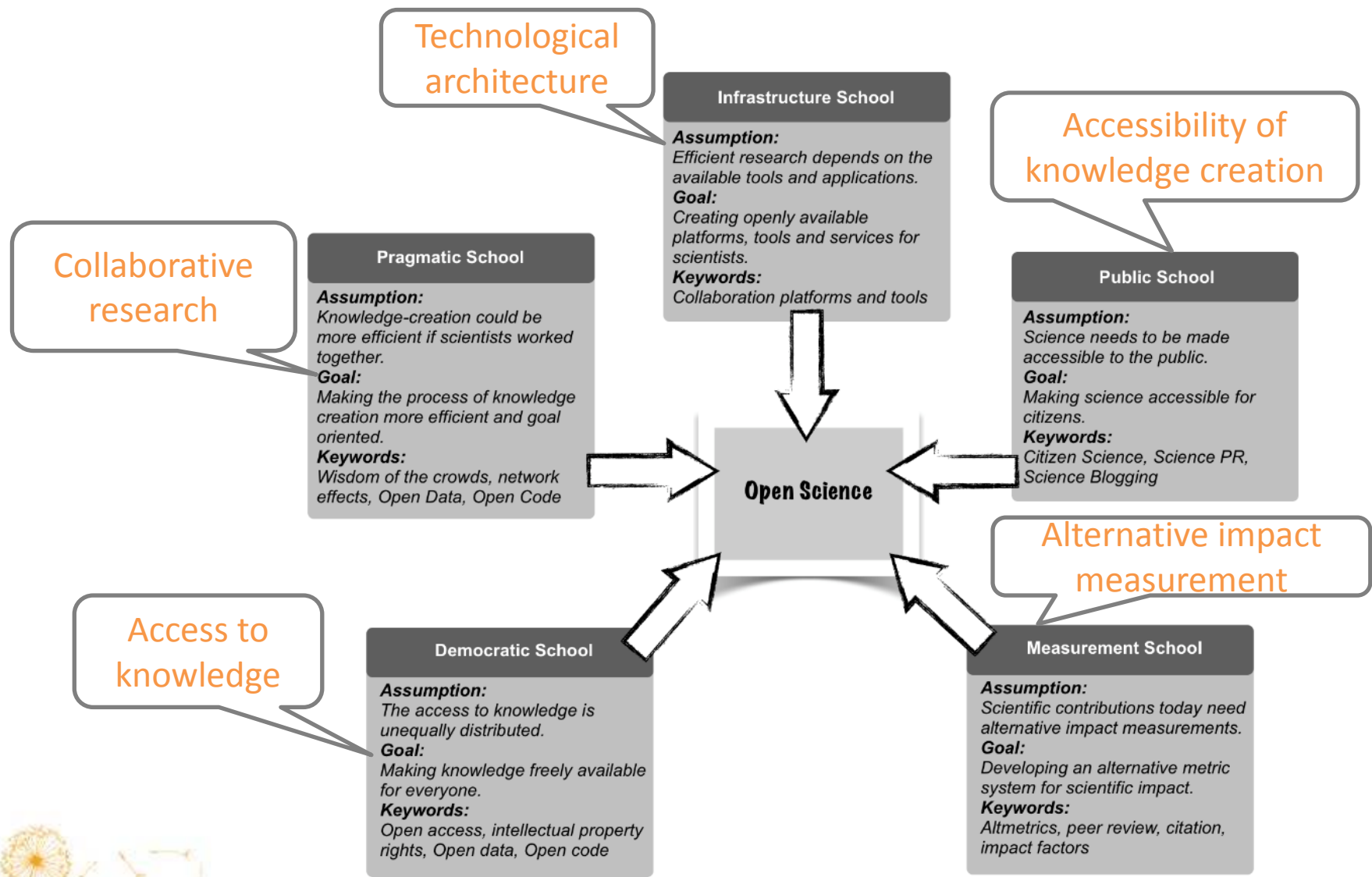
The Open Materials badge is earned by making publicly available the components of the research methodology needed to reproduce the reported procedure and analysis



The Preregistered badge is earned for having a preregistered design and analysis plan for the reported research and reporting results according to that plan.

# Open Science: One Term, Five Schools of Thought.

[http://book.openingscience.org/basics\\_background/open\\_science\\_one\\_term\\_five\\_schools\\_of\\_thought.html](http://book.openingscience.org/basics_background/open_science_one_term_five_schools_of_thought.html)



## How Open is Your Research? A Checklist for Institutions

A checklist designed to enable research institutions to assess quickly the openness of their research and teaching outputs. From disseminating scholarly and scientific research, and teaching, including for instance the adoption or development of, and adherence to, policies and strategies.

Fictitious example



<http://sparceurope.org/how-open-is-our-research-a-checklist-for-institutions/>

# More Open Science resources.....

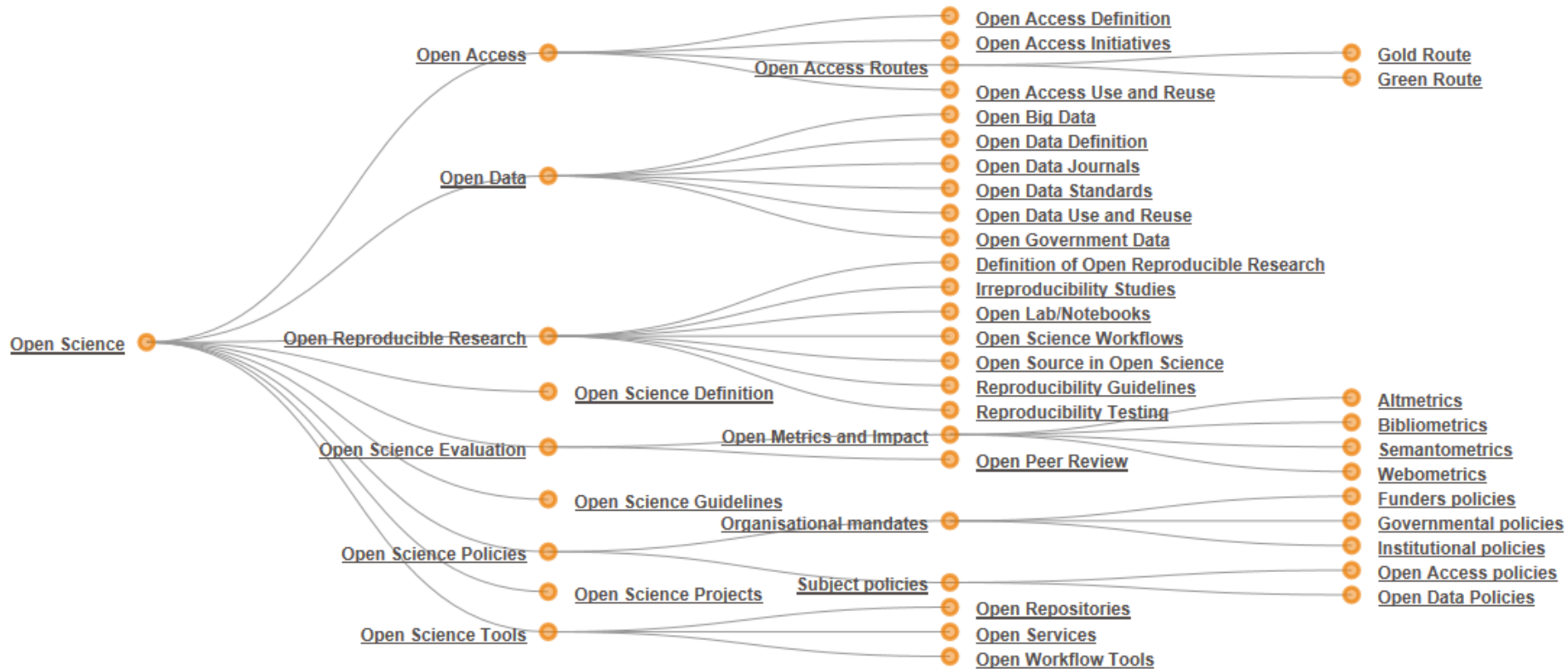
# Diagram of Foster's Content Classification

Open Science

Research Data Management

Ethics

Legal Issues



<https://www.fosteropenscience.eu/>



# Foster open science!!!!

*¡¡Gracias!!  
Thank you!  
Gràcies!*

Reme  
rmelero@iata.csic.es

